

10 KW 19" 12U RACK SYSTEM

OPUS HE POWER SYSTEMS



Features

- » Efficiency up to 97%
- » Convection cooling – no fans
- » Outputs 24, 48, 60, 110, 125, 220 VDC
- » 10.0 kW output power, 24VDC 7.5kW
- » Configurable load distribution
- » VIDI2 controller, local and remote interfaces
12 x relays, Ethernet, Modbus, IEC61850, SNMP, RS-232
- » Flexible design with full front cabling
- » Battery midpoint monitoring, battery state of health monitoring
- » Options: Wall mounting and IP21 kit, BLVD contactor, battery block voltage monitoring
- » Safety:
Rack: EN61439-1, EN61439-2
Rectifiers: EN 62368-1, EN 50124-1 rail
- » EMC:
EN 61000-6-1 / -2 / -3 / -4 / -5
EN 50121-4/-5 rail signalling & substation, ETSI EN 300386 (48/60V)

Main Features



Use cases



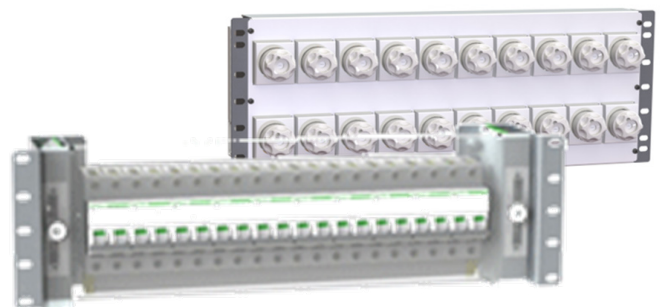
PRODUCT DESCRIPTION

OPUS HE power systems are robust, free convection cooled, N+1 redundant backup power solutions for critical infrastructure applications such as transmission and distribution substations, process industries, railway signalling and substations and telecommunications.

OPUS HE DC power systems consist of MHE rectifiers, VIDI2 controllers, Connections for mains and battery and load distribution MCB. System is configurable to match with requirements of the application.

19" 12U Rack delivers maximum 10 kW output power at 48, 60, 110, 125 and 220 VDC and 7.5 kW at 24 VDC output. 19" 12U Racks include slots for maximum 5 rectifier modules. Load distribution configuration of MCB quantity and current ratings can be configured per order. Wall mounting, IP21 cover kit, temperature sensor, battery block voltage monitoring and BLVD are options.

- OPUS HE 24-7.5 R12U F**
- OPUS HE 48/60-10.0 R12U F**
- OPUS HE 48/60-10.0 R12U P**
- OPUS HE 110/125-10.0 R12U F**
- OPUS HE 220-10.0 R12U F**



19" Load distribution panels

TECHNICAL SPECIFICATIONS

GENERAL CONSTRUCTION	
Cooling	Natural convection
Protection	IP 20, Option IP21
Controller user interface	Display and local control in front panel
Connections	Behind front panel
Colour	Frame RAL 7024
Dimensions & weight	Height 12U (533 mm) Width 19" (482 mm) Depth 395 mm Weight 20 kg w/o rectifiers

ENVIRONMENT AND STANDARDS	
Temp. range	-25 ... +60°C, see derating, Start-up at -40°C
Humidity max	95% relative humidity, non-condensing
Altitude	Max 3km, full power up to 2km above sea level Derating 2% per 100 m between 2-3km
Safety	Rack: EN61439-1, EN61439-2 Rectifiers: EN 62368-1, EN 50124-1 rail
EMC	EN61000-6-1 / -2 / -3 / -4 Generic EN61000-6-5 Utility EN 50121-4/-5 Rail, signaling and substation ETSI EN 300 386 (48/60V) telecom

AC Input	OPUS HE 24-7.5 R12U F	OPUS HE 48-10.0 R12U F/P	OPUS HE 60-10.0 R12U F/P	OPUS HE 110-10.0 R12U F	OPUS HE 125-10.0 R12U F	OPUS HE 220-10.0 R12U F
AC connection	TN-S system, 3W + N + PE, (3-phases, neutral and protective earth wires)					
Nominal input	220-240 VAC / 3 x 380-415 VAC (TN-S system) Options: 1-phase supply 100-250VAC, 3-phase Delta/IT supply 3 x 173-250VAC					
Input range	Max range: 85 – 300 VAC / 3 x 147–528 VAC Rated full power range: 180 – 275 VAC / 3 x 312–476 VAC (TN-S system) See derating curves below, 1200W per rectifier at 120VAC / 3 x 208VAC Temporary high voltage range 275 - 300VAC / 3 x 476 - 528VAC, continuous supply not recommended					
Input frequency	Rated 45 - 66 Hz, reduced power at 35 - 45 Hz. Shut down at 35 Hz					
Nominal current	16A @ 220/380V	22A @ 220/380VAC				
Maximum phase current	25A @ 85-130V	25A @ 85-180VAC				
Recommended mains fuse	3 x 25 A (TN-S)					
Main Switch	63A, 4-pole (L1-L2-L3-N)					
Rectifier input protection	MCB C16A / rectifier module					

DC Output	OPUS HE 24-7.5 R12U F	OPUS HE 48-10.0 R12U F/P	OPUS HE 60-10.0 R12U F/P	OPUS HE 110-10.0 R12U F	OPUS HE 125-10.0 R12U F	OPUS HE 220-10.0 R12U F
Grounding	2-pole, floating	1-pole, + grounded or 2-p floating		2-pole, floating		
Nominal voltage	24 VDC	48 VDC	60 VDC	108 VDC	120 VDC	216 VDC
Voltage factory setting	27.24 VDC	54.48 VDC	68.10 VDC	122.58 VDC	136.20 VDC	245.16 VDC
Voltage range	21-33 VDC	42-59 VDC	51-72 VDC	90-150 VDC	100-160 VDC	178-280 VDC
Quantity of rectifiers	Max 5 pcs					
Max current Max Power	312.5A @ 24V Max 7.5kW *)	208.5A @ 48V Max 10kW	166.7A @ 60V Max 10kW	92.5A @ 108V Max 10kW	83.3A @ 120V Max 10kW	46.3A @ 216V Max 10kW
Static voltage regulation	± 2 % @ rack terminals (load, line, temp)			± 1 % @ rack terminals (load, line, temp)		
Rectifier output protection	MCB C63A	MCB C50A	MCB C50A	MCB C20A	MCB C20A	MCB C10A

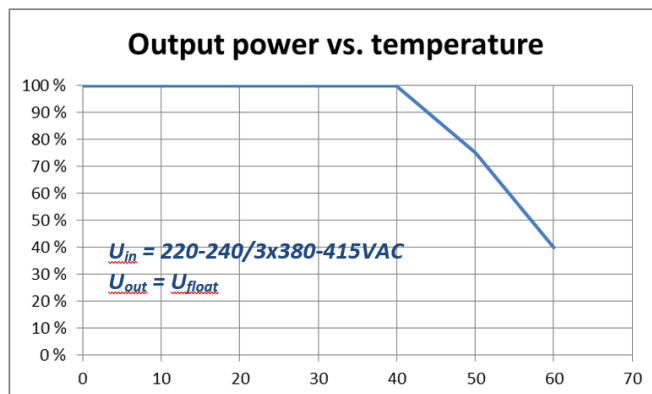
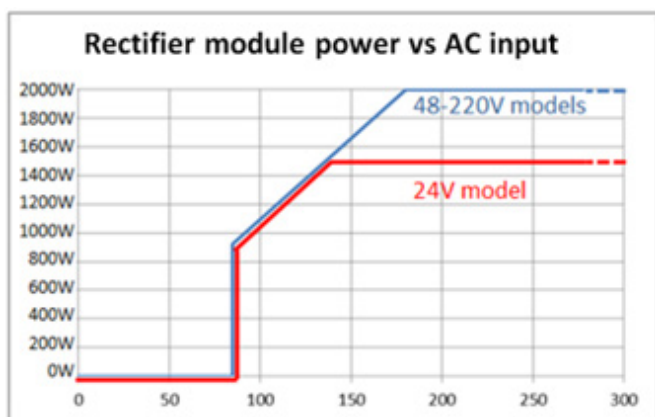
*) Battery MCB D250A, max battery current 250A

Battery connection	OPUS HE 24-7.5 R12U F	OPUS HE 48-10.0 R12U F/P	OPUS HE 60-10.0 R12U F/P	OPUS HE 110-10.0 R12U F	OPUS HE 125-10.0 R12U F	OPUS HE 220-10.0 R12U F
Protective device	MCB D250A 2-pole + aux	MCB D250A 2-pole + aux	MCB D250A 2-pole + aux	MCB D100A 2-pole + aux	MCB D100A 2-pole + aux	MCB D63A 2-pole + aux

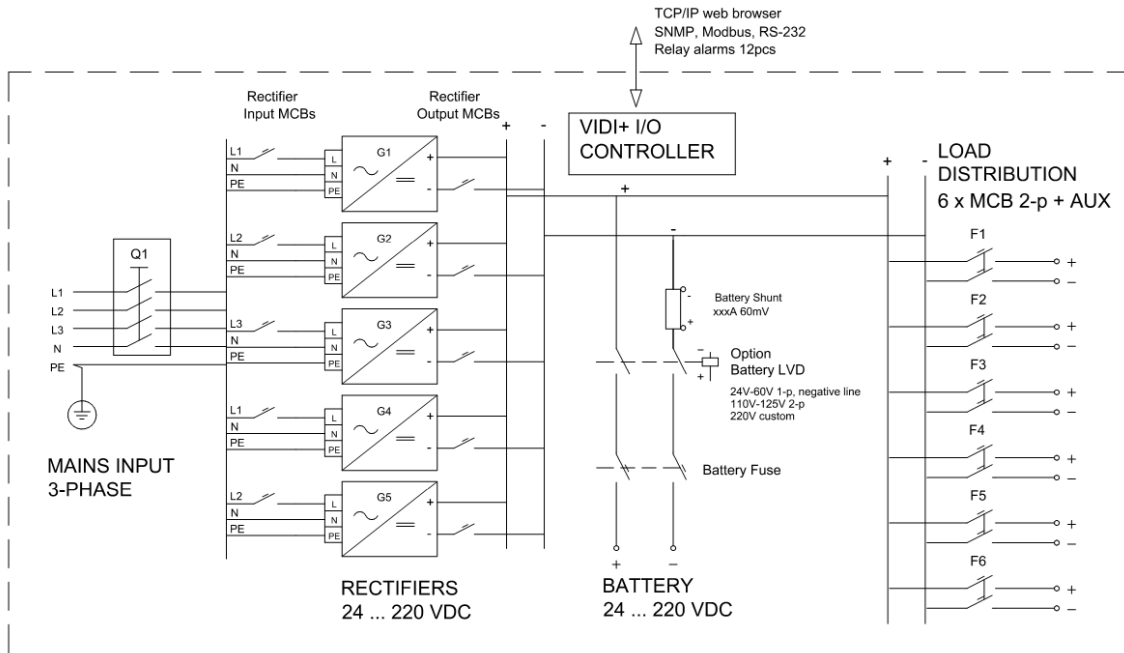
Load distribution	OPUS HE 24-7.5 R12U F	OPUS HE 48-10.0 R12U F/P	OPUS HE 60-10.0 R12U F/P	OPUS HE 110-10.0 R12U F	OPUS HE 125-10.0 R12U F	OPUS HE 220-10.0 R12U F
Protective device	Max 6 x MCB 2-p + aux, 2 A to 63 A	P: Max 10 x MCB 1-pole + aux F: max 6 x MCB 2-pole + aux 2A to 63A				Max 6 x MCB 2-pole + aux 2A to 63A

Connection terminals	
Mains terminal	Q1 Main switch terminal blocks 10 mm ² , L1-L2-L3-N-PE
DC output	MCB screw terminals, 1.5mm ² ... 25 mm ² flexible cable, 1.5mm ² ... 35 mm ² rigid cable
Battery	MCB screw terminals, 1.5...35 mm ² flexible cable, 1...50 mm ² rigid cable
Alarms, Inputs	Configurable relay alarms 4 pcs (option up to 12), Spring terminals 0.75mm ² ... 1.5mm ² cable Configurable alarm/temp. inputs 4 pcs (option up to 12), Spring terminals 0.75mm ² ... 1.5mm ² cable

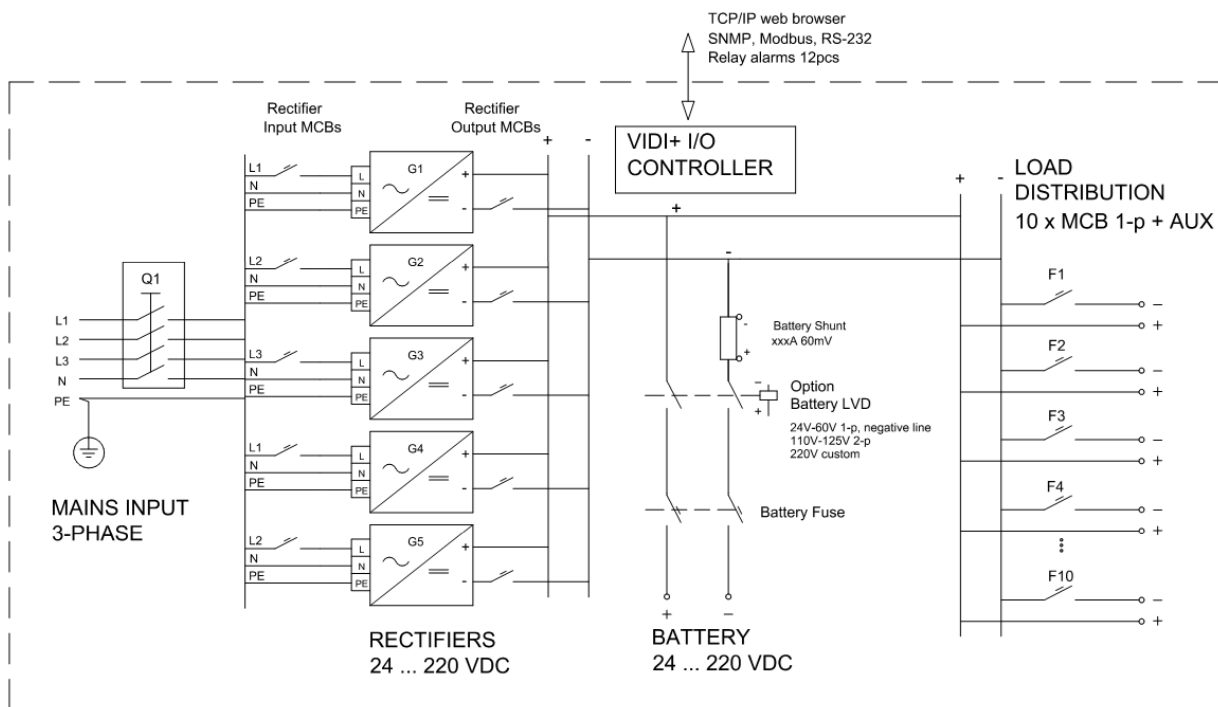
DERATING CURVES



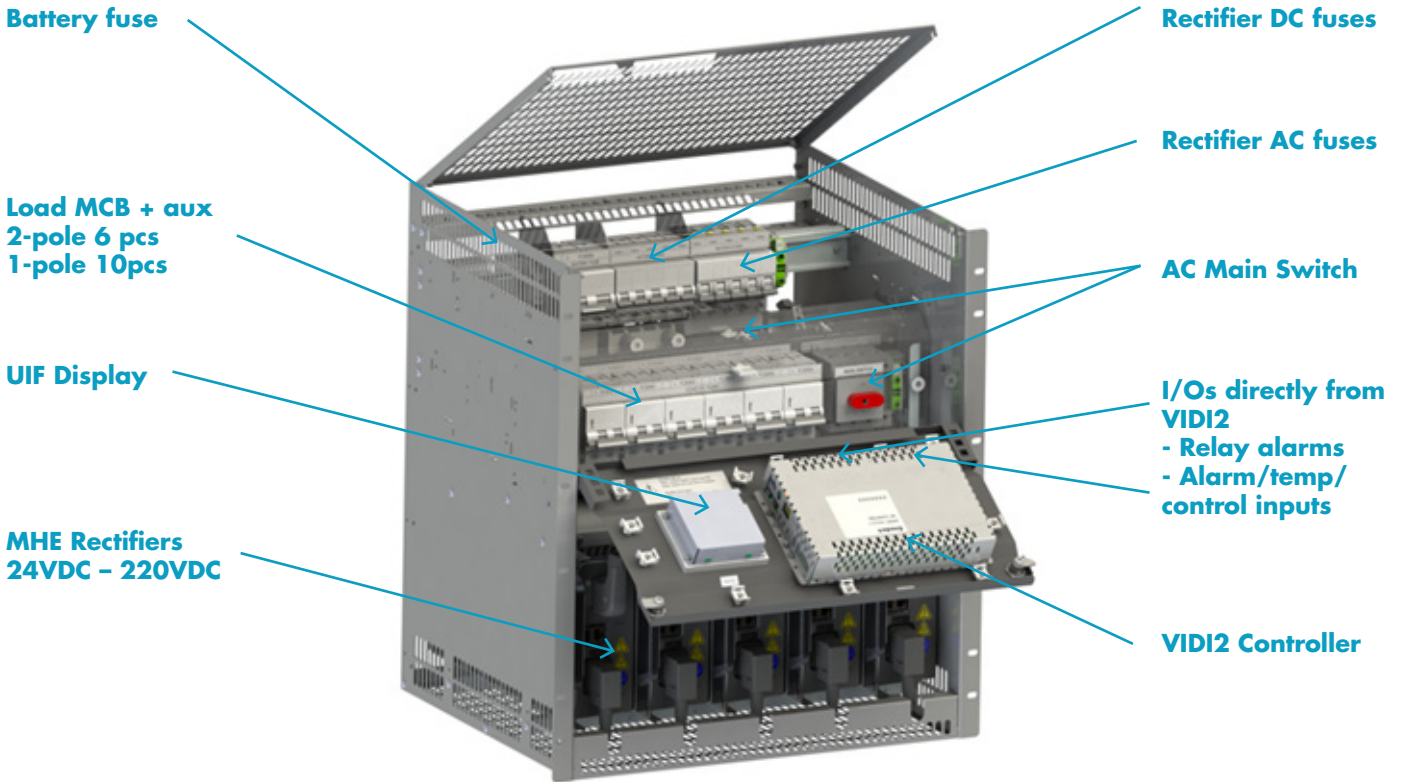
BLOCK DIAGRAM, 2-POLE FLOATING SYSTEMS



BLOCK DIAGRAM, 1-POLE SYSTEMS, POSITIVE POLE GROUNDED, OPTION NEGATIVE POLE GROUNDED



LAYOUT DRAWINGS



Option



Option:
Modular UPS rack 19"
12U
3 x Rectifier
2 x Inverter
Bypass & Manual bypass

ORDER INFORMATION

Systems, Description	Order number	Voltage / Current	Rectifiers	Order number
OPUS HE 24-7.5 R12U F	922XW15094	24VDC / 62.5A – 312.5A	MHE24-1500	92I280
OPUS HE 48/60-10.0 R12U F	922XW15102	48VDC / 41.7A – 208.5A 60VDC / 33.3A – 166.7A	MHE48-2000	92I160
			MHE60-2000	92I290
OPUS HE 48/60-10.0 R12U P	922XW15095	48VDC / 41.7A – 208.5A 60VDC / 33.3A – 166.7A	MHE48-2000	92I160
			MHE60-2000	92I290
OPUS HE 110/125-10.0 R12U F	922XW15097	110V / 18.5A – 92.5A 125V / 16.7A – 83.3A	MHE110-2000	92I250
			MHE125-2000	92I260
OPUS HE 220-10.0 R12U F	922XW15099	220V / 9,3A – 46,3A	MHE220-2000	92I270

Controllers, Description	Order number	Options, Description	Order number
VIDI2 System controller	94I640	VIDI2-EFD Earth fault detection units	95I650

Options, Description	Order number	Options, Description	Order number
Temperature Sensor	94M268	Battery LVD 200A 24V 1-P R 12U	94M434
Wall mounting and IP21 kit	8320X0002080	Battery LVD 48/60V 200A R 12U	8160X0011789
		Battery LVD 110/125V 100A R	8160X0000006

2-pole MCB+aux, max 6pcs	Order number		1-pole MCB+aux, max 10pcs	Order number
24V-60V Schneider iC60N series	See configurator		24V-60V Schneider iC60N series	See configurator
110V-220V Schneider C60H-DC series	See configurator			

Fuse monitoring	Order number		Fuse monitoring	Order number
Auxiliary contact, C60H-DC series	5760X0008930		Auxiliary contact, iC60N series	5760X0009731

Load Distribution panels	Order number		Load Distribution panels	Order number
10 x MCB 2-p, FMU, 24V-60V, 19" 3U	832X016086		8 x MCB 2-p+aux, 24V-220V, 19" 3U	832X016110
10 x MCB 2-p, FMU, 110-220V, 19" 3U	832X016087		14 x MCB 1-p+aux, 24-220V, 19" 3U	832X016111